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ABSTRACT

This study analyzes the experience of existing higher education student loan programs in developing countries in order to understand their role in fostering cost recovery. Detailed financial analyses of 24 loan programs shows that present value of the repayments collected constitutes a small percentage of the loan value disbursed. In general, developing country loan programs to date have not reduced significantly the government's fiscal burden for higher education. In order to improve financial effectiveness, programs should be targeted toward the most needy and able students. Hidden subsidies should be limited by charging positive real interest rates, combined with repayment plans that take account of the likely pattern of graduate earnings. Larger programs may be more difficult to manage. Some countries have considered alternatives where the student pays for education from future income. The most notable is a graduate tax in which a student pays a fixed percentage of income over the entire working life, regardless of how much is repaid. With an effective tax system, this could bring in more revenue than traditional loan programs. Some income contingent payments may be more equitable for limiting risk to poorer students. In general, deferred cost recovery can help reduce government burdens, but only where institutional capacity exists. Two annexes present a checklist of policy options for deferred cost recovery and a method for calculating subsidies on mortgage loan programs. (46 references) (JB)

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World Bank Discussion Papers

Deferred Cost Recovery for Higher Education

Student Loan Programs in Developing Countries

Douglas Albrecht
Adrian Ziderman

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World Bank Discussion Papers

Deferred Cost Recovery for Higher Education

Student Loan Programs in Developing Countries

Douglas Albrecht
Adrian Ziderman

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Abstract

Given the growing demand for access to higher education, and the declining quality and available resources from governments, many governments, particularly in developing countries, have attempted to increase student contributions. In many instances, however, governments have encountered problems increasing cost recovery without deterring access among lower income students. Despite clear economic and financial rationale, tuition increases can be difficult to implement because of the inability of many students (and their parents) to pay fees out of current income. Many economists have advocated student loan programs as a means to increase private contributions while also preserving access. This paper analyzes the experience of existing loan programs, particularly in developing countries, in order to understand their role in fostering cost recovery.

Currently, loan programs exist in over 50 developing and industrial countries, and have most commonly been introduced to assist students to pay their living expenses. In somewhat fewer cases, they are used to support direct payments of instructional costs, and thus to expand the resource base of institutions. With the exception of four programs, all have taken the form of "mortgage loans", in which students make fixed payments over a fixed time period. In contrast, programs in Australia, Sweden and Ghana, require payments in relation to income; Chile's programs allow for graduated annual payments.

Detailed financial analysis of 24 loan programs shows that present value of the repayments collected by loan programs constitutes a small percentage of the loan value disbursed (and the costs of administering the loan). In some instances, loan programs have been more expensive than continuing with a policy of outright grants. In general, developing country loan programs to date have not reduced significantly the government's fiscal burden for higher education.

In order to improve financial effectiveness, programs should be targeted toward the most needy and able students. Hidden subsidies should be limited by charging positive real interest rates, combined with repayment plans that take account of the likely pattern of graduate earnings. Default reductions require that loan programs be managed by institutions with the capacity and financial incentives to collect -- namely banks, private collection agencies, or taxation departments. Such reforms offer great potential to transform small programs into relatively efficient forms of student support.

Larger programs, however, may be more difficult to manage. Some countries have considered alternatives which preserve the basic concept of paying for education from future income. The most notable is a graduate tax in which a student pays a fixed percentage of income over the entire working life, regardless of how much is repaid. In the presence of an effective tax system, a graduate tax could bring in significantly more revenue than traditional loan programs. Besides improved financial efficiency, income contingent payments may be more equitable since they limit the risk to poorer students. In countries with weak taxation systems, this option may not be feasible.

Without reliable financial institutions or effective taxation mechanisms, loan programs and taxes may not have much potential. Rather, national service programs, differential fees, targeted scholarships and community support may be more effective alternatives. In general, deferred cost recovery can help reduce government burdens, but only where institutional capacity exists.

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This paper is the first in a series of papers by the authors on issues related to higher education finance.

FOREWORD

The World Bank has long acknowledged the important relationship between education and economic development, and in particular, the critical role of higher education institutions in providing leadership for education systems as a whole. Ever since the World Bank began lending for education in 1963, its aim has been to assist developing countries expand and improve their education systems. But the rapid expansion of higher education systems over the last three decades, compounded by the more recent global economic crisis, has left many institutions short of funds in relation to the demands imposed on them. The impact has been most severe on institutions solely dependent on governments for funding. The result has been declining quality as well as insufficient funds to help many needy students meet high living costs associated with attending universities. It is therefore crucial that nations begin to find alternative or supplementary sources of revenue for institutions, as well as to utilize scarce resources more effectively and efficiently in pursuit of their educational objectives.

This study is part of a series on issues related to higher education reform and finance currently being conducted by the Education and Employment Division of the Population and Human Resources Department of the World Bank. The goal of this study is to help decision makers explore alternatives to diversify the resource base for their higher education institutions through cost recovery, while minimizing negative impacts on vulnerable groups.

Ann O. Hamilton
Director
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1. Introduction

The financial problems of higher education have been well documented in recent years (Psacharopoulos and Woodhall 1985). Declining quality due to overcrowding, growing demand for access and constraints on government budgets imply that higher education systems must seek alternative sources of income. In parts of the developing world, slowing growth during the 1980's and rising costs of providing training at internationally competitive standards have led to a further erosion of institutional capacity. In addition, resource constraints for higher education institutions are compounded by government commitments to subsidize student living expenses. In many instances, government expenditures on student support has equaled or even surpassed educational expenditures (Psacharopoulos et al 1986). Many governments argue that student support is justified as a means to enable students to attend higher education while they are not earning income. In other instances, student support is part of a general welfare policy that relies on progressive taxation to redistribute income: students are entitled to a minimum social income while they forgo earnings.

The combination of rapid expansion, macro-economic difficulties, and commitments to student support have left governments seeking means to relieve budgetary pressures. Additional funds can come from two sources. Institutions can become more efficient, and thus free up resources; or institutions can diversify their resource base by bringing in more external funds. The most obvious source of additional income is from the direct beneficiaries of higher education -- the students.

In addition to the budgetary rationale for mobilizing student contributions, recent economic analyses have demonstrated efficiency and equity rationale for recovering at least part of the cost of higher education from students (Psacharopoulos et al 1986; Jimenez 1987; Birdsall and James 1990). In sum, cost recovery is believed to lead to a more efficient use of public and private resources; to increase the equity of educational systems which tend to attract elites or produce future high income earners; and to provide an expanded source of revenue to support more educational opportunity and better quality.

In many instances, however, imposing cost recovery -- either for living expenses or for instructional costs -- has proven politically difficult, and has raised the problem of how to relieve the pressure on students who cannot afford to pay. To resolve this problem, much economic literature has advocated student

loans to enable students to defer payment for the costs of attending higher education until they are earning incomes. We refer more broadly to **deferred payment** programs to include those policy instruments which secure payment from the future incomes of students, rather than their current resources. Extensive theoretical and comparative literature on student loans has been developed by Maureen Woodhall. A particular emphasis of her work has been on the potential role of loans in developing countries (Woodhall 1983, 1987(a), 1987(b), 1991). Johnstone (1986) has surveyed student support mechanisms in industrial countries. More theoretical discussions have been developed by Mingat, Tan and Hoque (1985), and Psacharopoulos and Woodhall (1985). In recent years, alternative formats for loans, particularly loans with income contingent repayments[1] have received considerable attention (Barnes and Barr 1988; Barr 1989; Woodhall 1990b and 1991).

While most of this literature has been extremely optimistic about the efficiency of student loans, few studies have actually examined their financial impact, particularly in developing countries. In this paper, therefore, we examine the financial impact of current and past programs on government and student budgets, highlight key obstacles, particularly with regard to payment formats and administering institutions. The paper then turns to strategies for improvement. Overall, we conclude that while it is possible to improve small scale loan programs that have had, until now, only a marginal impact on reducing government expenditures, most student loan programs possess severe limitations in their present forms.

The plan of the paper is as follows. The main characteristics of loan programs in fifty countries are discussed in Section 2. In Section 3, the financial performance of 23 of these programs are examined in detail while in Section 4 we suggest policy reforms that would lead to improved financial performance. Alternative cost recovery mechanisms are discussed in Section 5 and some conclusions on the feasibility of introducing a loan program concludes the paper in Section 6.

---

[1] Loans with income-contingent repayments have somewhat misleadingly been labeled "income-contingent loans" in the remainder of the paper, we use the more common term.

2. Existing Student Loan Programs

Student loans programs have been developed in various forms in over 50 countries throughout the world. Summary information on these programs is listed in Table 1, in terms of geographic coverage, type of repayment format, administering institution, purpose of loan support, average value of the loan and the proportion of students covered by the loans scheme. In general, developing country student loan programs have been used to assist with student living expenses and typically cover only a few percent of the student population.

Coverage

The present study has identified 20 programs in Latin America and the Caribbean, eight in Asia, four in the Middle East and Northern Africa, seven in Sub-Saharan Africa and 14 in industrialized countries. Noteworthy is the large number of loan programs in Latin America and the Caribbean: first implemented in Colombia in 1953 to assist graduate students to meet the costs of overseas study (Woodhall 1983), loan programs (referred to locally as student credit programs) are now in place in most countries in the region. This contrasts with the paucity of programs in other developing countries, especially in the Middle East and Africa, where indeed some programs have been abandoned in recent years.

Many countries have no single loan program. Federated countries often have locally run systems of support. Canada, for instance, has national and provincial loan schemes. The US has federal, state and institutional loan programs. In Latin America, many countries have several loan programs, often sponsored by private non-profit groups, government ministries, and large companies.

Repayment format

With the exception of four schemes, all programs offer students credit in the form of a "mortgage" loan. In this traditional mortgage-type loan, repayment is made over a specified period, usually with fixed monthly payments; interest rates and the maximum length of repayment are used to calculate the fixed

periodic payments. In contrast to this regime of equal nominal payments, most of the universities in Chile allow graduated nominal payments: borrowers from Chile's Catholic University, for example, pay equal real (rather than nominal) amounts, thus ensuring that the first payments are not excessively large in real terms in relation to others.

A third type of repayment mechanism is an income contingent loan, in which loans are repaid as a proportion of a graduate's income each year. Income contingent loans are expected to be more favorable to low-income students. The basic problem of borrowing for education, is that the outcome is risky, since the future value of a degree is not immediately apparent. The risk is greatest for students from poorer backgrounds: future job and earnings opportunities may be less favorable for the poor, and fixed future repayments commit the debtor to repay an open ended proportion of his income. In addition, the poor tend to be more risk averse than the well-to-do (Reuterberg and Svennson 1990; Barr 1990). Therefore mortgage loans may deter access among the very groups that loans are intended to reach.

Table 1. Existing Student Loan Programs

Country (Loan Organization)	Repayment Mechanism	Administering Institution	Purpose of Support	Average Loan Value	Year Begun	Percent of students with loans	Data year
LATIN AMERICA AND CARIBBEAN							
Argentina (INCE)	Mortgage Loan	Autonomous Body	Living				
Barbados (SRLF)	Mortgage Loan	Autonomous Body	Tuition and Living	$11,000	1976	12%	1989
Bolivia (CIDEP)	Mortgage Loan		Living				
Brazil (CEP)	Mortgage Loan	Commercial Banks	Tuition	$400	1974	25%	1989
Chile	Graduated	Universities	Tuition		1981		1988
Colombia (ICETEX)	Mortgage Loan	Autonomous Body	Tuition and Living	$280	1953	6%	1985
Costa Rica (CONAPE)	Mortgage Loan	Commercial Banks	Tuition and Living		1977		1983
Dominican Republic (FCE)	Mortgage Loan	Autonomous Body	Living				
Ecuador (IECE)	Mortgage Loan	Autonomous Body	Living			3%	
El Salvador (Educredito)	Mortgage Loan	Autonomous Body					
Honduras (Educredito)	Mortgage Loan	Autonomous Body	Tuition and Living	$2,700	1976	1%	1991
Jamaica (SLB)	Mortgage Loan	Autonomous Body	Tuition and Living	$405	1970	20%	1985
Mexico	Mortgage Loan	Commercial Banks					
Nicaragua (Educredito)	Mortgage Loan	Autonomous Body					
Panama (IFARHU)	Mortgage Loan	Autonomous Body			1966	6%	
Peru (INABEC)	Mortgage Loan	Autonomous Body					
Trinidad (SRLF)	Mortgage Loan	Autonomous Body	Tuition and Living		1972		
Venezuela (Educredito)	Mortgage Loan	Other	Tuition and Living	$400	1967	1%	1991
(FGMA)	Mortgage Loan	Universities	Tuition and Living	$2,200	1975	1%	1991
(BANAP)	Mortgage Loan	Commercial Banks	Tuition and Living	$700		1%	1991
ASIA							
China	Mortgage Loan	Universities	Tuition and Living		1987	30%	1989
India	Mortgage Loan	Other	Tuition and Living	$85	1963	1%	1989
Indonesia *	Mortgage Loan	Universities and Commercial Banks	Tuition and Living	$550	1982	3%	1986
Korea	Mortgage Loan	Commercial Banks	Tuition and Living		1975		
Malaysia	Mortgage Loan	Commercial Banks	Living	$1,300	1985		
Philippines	Mortgage Loan		Tuition		1976	1%	
Pakistan	Mortgage Loan	Commercial Banks	Tuition and Living		1974		
Sri Lanka	Mortgage Loan	Commercial Banks			1964		
MIDDLE EAST, NORTH AFRICA							
Egypt	Mortgage Loan	Autonomous Body				5%	1980
		Commercial Banks				2%	1980
Israel*	Mortgage Loan	Commercial Banks	Tuition and Living			12%	1983
Jordan	Mortgage Loan						
Morocco	Mortgage Loan	Commercial Banks	Tuition			<1%	1990
SUB-SAHARAN AFRICA							
Ghana	Income Contingent	Government Dept.	Living	$200	1989	68%	1990
Kenya	Mortgage Loan	Commercial Bank	Living	$845	1973	100%	1990
Nigeria*	Mortgage Loan	Autonomous Body	Tuition				
Rwanda							
Burundi*							
Malawi	Mortgage Loan		Living	$80	1988	50%	1989
Tanzania*	Mortgage Loan		Living				
INDUSTRIAL COUNTRIES							
Australia	Income Contingent	Government Dept.	Tuition	$1,750	1989	81%	1990
Canada (Quebec)	Mortgage Loan	Commercial Banks	Tuition and Living	$2,800	1963	59%	1990
Denmark	Mortgage Loan	Commercial Banks	Living	$3,700	1975		1985
Finland	Mortgage Loan		Living	$2,200	1986		1987
France	Mortgage Loan	Government Dept.	Living			1%	
Germany	Mortgage Loan		Living	$1,500	1974	30%	1987
Hong Kong	Mortgage Loan	Government Dept.	Tuition and Living	$1,050	1969	26%	1989
Netherlands	Mortgage Loan		Living	$200			1989
Norway	Mortgage Loan	Autonomous Body	Living	$4,000		80%	1986
Japan	Mortgage Loan	Autonomous Body	Tuition and Living	$2,500		19%	1987
Singapore	Mortgage Loan	Government Dept. Commercial Banks	Tuition and Living			39%	1990
Sweden	Income Contingent	Autonomous Body	Living	$5,828			
United Kingdom	Mortgage Loan	Autonomous Body	Living	$750	1990	7%	1990
USA	Mortgage Loan	Commercial Banks	Tuition and Living	$2,176	1964	28%	1987

Blanks imply information was not available.
*Programs in Indonesia, Israel, Nigeria, Tanzania and Burundi have been abandoned.

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Income contingent loans constitute a mechanism for achieving a balance between effective recovery of costs and minimum risk to the borrower. Here, the size of repayment is linked to the graduate's income. Income contingency thus limits debt burden in a given period, and also targets more subsidies to lower wage earners. Since high earners have to pay their loans more quickly, they benefit less from any subsidy: low earners are able to repay more slowly, and therefore receive greater subsidies. Currently, there are three income contingent loans programs - in Sweden, Australia and Ghana. In Sweden, students are now required to pay four percent of their annual income to the loan fund until their debt is repaid. The schemes in Ghana and Australia respectively, use social security contributions and income taxation for loan repayment.[2]

Administering Institutions

For the most part, credit programs are administered through public institutions. Even where the private sector is responsible for lending (as in the US) the government acts as a guarantor on loans. Public intervention stems from a failure on the part of private markets to supply credit for unsecured human capital loans.[3] Public interventions have taken four major forms.

In most countries, public intervention has led to the creation of autonomous public lending bodies. These institutions have often been labeled "revolving funds" which, once capitalized, are expected to finance themselves through repayments from earlier loans. Yet, as will be argued, this is rarely the case, since loans are generally heavily subsidized and result in losses. The advantage of this type of lending institution is that it allows stronger control over targeting policies, and the introduction of non-traditional type loans -- such as income contingent loans. Such autonomous bodies exist throughout Latin America and Europe, as well as in Hong Kong, Egypt and Nigeria. They manage student selection based on merit, need and national priorities.

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[2] In Australia, former students will repay their debt through a graduated surplus income tax (one, two or three per cent of income). Although the Australian scheme is sometimes referred to as a graduate tax, it is in fact a loan collected through the taxation system. While a true graduate tax has not been implemented in any country, it will be examined as an alternative strategy in section 5.

[3] Government intervention is also necessitated from a demand perspective. Student demand for credit is likely to be constrained because of uncertainties among poorer students as to the value of a degree in relation to proposed debt. This requires the government to act to minimize risk both for borrowers as well as creditors.

In Latin America, many manage overseas scholarship and loan programs (such as the FGMA in Venezuela and Educredito in Honduras). Institutional strength however varies tremendously: some, particularly in Europe and in Colombia, are quite strong, while others lack basic managerial and physical resources necessary to administer the program. As a result, many of these bodies have begun to delegate loan administration to third parties such as commercial banks.

A second common administrative arrangement is the use of commercial banks. Participating banks have been both publicly and privately owned. Some manage programs entirely, with or without government guarantees, while others act simply as collection agents. In Brazil, the government owned commercial banking system has managed the portfolio of student loans since 1975; the government sets broad policy regulations for the loan program, while local branches of a commercial banking system execute distribution and recovery. Decentralization can make processing and collection more efficient, while the banking system's previous lending experience, and control over individual's access to future credit, makes them more effective in reducing default. The administrative efficiency of these institutions tends to be better than the autonomous bodies. Public commercial banks have been used in Indonesia, Pakistan, Barbados and Venezuela.

Private Banks have managed programs both with and without government support. In the US, private banks disburse and collect money from students, while the government guarantees and subsidizes the loans. There are three major motivations for relying on the private sector: first, the government does not have to make initial capital outlays; second, the government hopes to harness the efficiencies of the private sector and reduce the costs of a loan program; third, the government does not have to set up a potentially costly administrative apparatus to handle the program. Other countries utilizing private banks in a similar fashion are Canada and Denmark. Opting for private banks does not ensure effective recovery. Default is a problem in the US, but the source of high default is not reliance on the private sector per se, but rather faulty policies and incentive structures. While private banks may represent the lowest cost approach for governments, the strategy is feasible only if a banking system is in place and even then, banks may not wish to participate in the program -- as in the UK -- because of potential losses and feared "bad images" with future clientele.

In some countries, private banks have begun student loan programs without any government guarantees or subsidies. Such programs, as in Morocco, typically support private institutions that offer training in fields that lead to high salaried employment. A program exists in Indonesia to help finance high tuition fees for elite business programs. These banks tend to loan money to secure borrowers (not poorer students) and for students studying in fields that guarantee high private returns to the investment. As a consequence, they indirectly provide incentives for universities to expand programs in fields of relevance to the labor market.

A final administrative approach utilizes existing government structures for disbursement and collection. To address some of the administrative problems involved with income contingent collection, two countries (Ghana and Australia) utilize the government revenue collection systems to recover loans. In Ghana, the collection is managed by the Social Security department; in Australia, through the national income tax. Transactions are made directly to and from the budgets of different government bodies, without creating new administrative structures. While there may be little conceptual difference between a loan repaid through the taxation system or to a bank, there may be a considerable difference in the effectiveness in recovering funds and in administrative costs. In addition, if government structures are used, then the government usually needs to make the initial capital outlays for the program.

The mechanics of collecting contributions in Ghana and Australia are quite different. In Ghana, students have been able to borrow money from the government to pay newly imposed fees for living expenses; repayment is made through the existing social security tax on all wage earning employees, by deferring the accumulation of retirement benefits (see Box 1). Social security payments have a particular advantage because in many systems individuals have an incentive to pay this tax, since they derive benefits in proportion to what they pay. Australia, in contrast, has implemented a system where the Ministry of Education disburses funds to students to cover fees; repayment is through a graduated surplus income tax, with outstanding debt assessed at a zero percent real interest rate, and tax rates of one per cent, two percent and three percent depending on individual income.

Box 1: Ghana: Using Social Security for Repayment.

In 1989, the Ghanaian government began to charge university students for housing and meals. At the same time, it offered students an optional loan worth about $200 to help meet these costs. The most innovative aspect of the loan is the collection mechanism, through the social security system. Graduates repay their loans through their standard social security deduction which goes to the education budget rather than to their own benefit account. Students, therefore, repay their loans not through an increased social security tax rate, but rather by deferring contributing to their own retirement accounts until the loan is repaid. Once a graduate finds employment, the standard 5 percent payroll deduction plus the employer's 12 percent contribution goes to the Ministry of Education rather than the retirement accounts.

The program is not without problems. A first concern is a large interest subsidy on the loan. More puzzling however is whether the student actually makes any contribution. The scheme may not actually collect any additional revenues for the government; rather, the social security system may be subsidizing university education. This is because workers usually accumulate maximum retirement benefits some years before retirement, but continue to contribute to the social security system. Thus, even if students wait four years before starting to accumulate their retirement benefits, the normal work life may be such that these students anyhow would have worked an extra four or five years beyond the period that full retirement benefits had been accumulated. In the final analysis, the government may have to find extra funding for the social security system.

Several other countries have considered using the taxation system rather than specialized loans institutions, but have rejected this on grounds of administrative infeasibility. In the UK and New Zealand, the taxation institutions did not want the additional burden they felt a loan scheme would impose on them. Tax collection in developing countries may present more severe obstacles. While many anglophone African countries have effective taxation structures such as social security, this is not the case in much of francophone Africa, the Middle East nor much of Latin America where social security taxes are quite fragmented. In these situations, utilization of the taxation system to collect student debt does not constitute a feasible option. Finally, a few other countries rely on the taxation department as a collector of last resort, as in Canada and the US.

Purpose of Support

An initially surprising feature of Table 1 is the large number of programs that offer support for students' living expenses. Of the forty programs for which information is available, 33 offered maintenance support (for lodgings, food etc); of these, nearly half supported living expenses solely (European countries,

Kenya, Ghana), the rest in combination with support for tuition expenses (US, Colombia, Hong Kong, Korea, Japan). The programs supporting combined tuition and living expenses often attempt to promote student choice between public and private institutions. A student can use support to pay tuition at more expensive private schools or for living costs by attending a public university (as in Colombia and the US). The purpose the loan program depends on the structure and policies within the university system. In many countries student living allowances absorb a very high proportion of the higher education budget; in Africa, for example, where public university education is typically free, generous student support often accounts for more than half of higher education budgets. In theory, loan programs aimed at living expenses can free up budgets to finance educational inputs; there remains enormous scope for further moves in this direction. As a consequence, many African governments with larger student support budgets (Box 2), have either recently implemented new loan programs, or are contemplating new ones. Ghana and Malawi have just introduced loans to reduce government expenditures on living expenses.

Box 2: Student Maintenance and Higher Education Budgets

Government commitments to funding student living expenses have represented a growing share of higher education budgets, often at the expense of institutional budgets. While only representing six percent of recurrent expenditure in Asia, and 14 percent in industrial countries, student support represents around twenty percent of spending in the Middle East and Latin America. Allowances in East Africa for non-tuition expenses, constituted 35.2 percent of the total expenditure and an alarming 65.6 percent in Western Africa. Allowances are as high as 62 percent of the average public sector salary in Burkina Faso. A more recent survey conducted reveals that, on average, scholarships account for 37 percent of higher education spending in Africa, but 47 percent in the lowest income countries (World Bank 1988).

Share of Living Allowances to students
in Recurrent Higher Education Budget c. 1980

Region	%
East Africa	35.2
West Africa	65.6
Asia	6.5
LAC	17.4
EMENA	19.1
OECD	13.7

Source: Psacharopoulos, Tan, Jimenez 1986.

At issue, in many countries, is whether individuals over the age of 18 should be treated as family dependents. Requiring families to maintain students after a certain age, in some instances, may impose unfair hardship on other family members, and also lead to discriminatory practices, particularly against female children. On the other hand, if the state regards all eighteen years olds as independent, then individuals from wealthy families income will be likely to receive support -- because while family income could be high, the student's income would probably be low.

In only five countries are loans still used to fund tuition fees only (Brazil, Chile, the Philippines, Morocco, and Australia). Indeed, tuition loans have often been essential to the development of fee charging private sectors. In Colombia, Brazil, and Morocco, loans to assist students in private institutions have permitted their expansion, and thus increased the overall access to higher education with lower budgetary demands on the government. Australia combined new tuition fees with an option to pay the whole amount as a loan through the tax system. In Chile, large tuition increases were combined with student support programs managed by universities.

Loan Value and Students Covered

To understand the financial impact of loan programs it is important to examine the amount that students are receiving, and the number of students receiving loans. While average annual loan values in industrial countries typically range between $1,000 and $5,000 per year, loans have been much smaller in developing countries. With the exception of countries that use loans to finance overseas study, programs normally lend under $500 per student. Those programs lending large amounts on average (Venezuela, Honduras and Barbados) have extensive overseas programs. Barbados is exceptionally high since the country does not have its own university, and students rely almost exclusively on foreign training.

A relatively higher proportion of students receive loans in industrial countries (between 20 percent and 80 percent) than in developing countries, where coverage is almost always less than 10 percent of the student population. Exceptions are found in Kenya and Ghana, where all public university students receive loans for living expenses. High coverage usually indicates a situation where loans replaced outright grants. As

a rule of thumb, the higher the coverage, the lower is the average loan amount. When institutions cover less than one percent of the student population, they are able to lend larger amounts; when they expand to 10 percent, the average size dwindles. The limitation on loan organizations in developing countries is their overwhelming dependence on the government for their budgets: when student repayments are relatively insignificant, total support in a given year is determined by government allocations.

In general, loan programs have not been used to support cost recovery for higher education. They have served as support mechanisms for the maintenance of students, at somewhat lower costs than outright grants: the next section will evaluate the extent to which different programs have operated at lower costs than a regime of grants. In addition, we shall illustrate that loan programs have had only marginal impacts on higher education finance, supporting a few students or providing relatively little support on highly subsidized terms. Before developing countries can fashion larger scale programs to enable students to meet the costs of higher tuition fees, important lessons from existing programs need to be learned. These issues are discussed in the next two sections.

3 The Financial Impact[4]

The major purpose of a loan scheme is to enable students to share the financial burdens for tuition and/or maintenance expenses with the government through payments from their future earned incomes. The financial efficacy of any loan scheme will depend centrally on the "loan recovery ratio" - the extent to which the loan is repaid in full. One can consider the relationship between what governments lend out to students and what is returned in repayments as an indicator of the loan's efficiency. An inefficient program, where the government recovers little of what it lends out implies that the government continues to bear the cost burden of higher education and/or student maintenance expenses.

A second issue raised in this section regards what costs are being recovered. Even if loan recovery were complete, with loan expenditures fully repaid, the vast majority of loan programs would only reduce government burdens for maintenance expenses, and not tackle the problem of diversifying the resource base of higher education institutions. Most public higher education institutions do not require students to pay tuition fees that cover a significant portion of educational costs. Therefore, the institutional "cost recovery ratio" (average loan repayment in relation to unit costs) will be low. Institutional cost recovery cannot be substantial unless tuition fees are high and loans are used to support students paying tuition.

Loan Recovery Ratio

The efficiency of student loans, and their relationship to institutional cost recovery are examined in the present section. 24 separate deferred cost recovery programs (from 20 different countries) are analyzed in detail to evaluate their financial impact, in terms of both loan recovery and the cost recovery ratio. Both types of existing loan programs have been evaluated -- mortgage loans, and income contingent loans. While these latter programs have been implemented recently in only three countries and it is thus too

[4] In order to evaluate programs, the authors have developed simulation models for mortgage-type loans (included tilted payment schemes), income-contingent loans and graduate taxes. These allow flexible inputs for repayment streams and costs, and can project budgetary requirements. For information on their use, contact the authors.

early to assess their full impact, it is possible to predict their revenue generating potential by projecting future earnings for university graduates. Loan recovery will depend on three major issues: the amount of hidden interest subsidies on loans; repayment losses due to default; and administration costs. Discussion of these three issues relates to Table 2.

Interest Subsidies (Hidden Grants): Student loans are subsidized if they charge an interest rate that is less than normal market rates for borrowing; this subsidy can be considered a "hidden grant" to students.[5] To calculate the size of the hidden grant portion of the loan, we examine the loan account of the individual borrower, assuming regular repayments are made in conformity with the formal conditions of the loan agreement. Thus we examine the amount and timing of repayment in relation to the loan disbursed to the student. Annex 2 contains a methodological note outlining the method used to measure this hidden grant.

The factors that influence the size of the subsidy are the real interest rate charged and the length of repayment: these are shown in Table 2. Column two and three, respectively, list the nominal interest rate charged in the data year and the real interest rate (nominal rates adjusted for average inflation). Column four lists the length of repayment[6] for loans (excluding grace periods); for income contingent loans, this is the length of repayment that is implied using an average income profile for university graduates. Column five presents the hidden subsidy to the student as a percentage of the original loan: this figure compares the net present value of the student's repayment account to the present value of the loan disbursement. We note that all of the loan programs in the sample are subsidized, some very highly so, ranging from 13 percent subsidy in Barbados to 93 percent in Venezuela. In half of the programs examined, subsidy exceeds 50 percent of the loan, indicating that less than half of the real loan value would be recovered if all students repaid on time. Even when real interest rates are positive - as in Barbados and Sweden - the loans are still subsidized because the interest charged is below market rates.

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[5] More precisely, even if the government were to provide loans at normal market interest rates, the government is still providing a subsidy because loans for education investment have a higher inherent risk.

[6] In some instances, repayment length is a function of borrowing length. The analysis assumes four years of borrowing.

Table 2. Hidden Subsidies and Government Losses on Selected Student Loan Programs

Country	Nominal Interest rate	Real Interest rate	Maximum or Projected Repayment Period	Hidden Grant to students per cent of loan	Government loss with default	Government loss with default and administr-	Year	Estimates
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
MORTGAGE LOANS								
Colombia I	11.0% a	-10.6%	8	73%	76% c	87%	1978	Administrative 2%
Colombia II	24.0%	3.0% b	5	29%	38% c	47%	1985	Administrative 2%
Sweden	4.3%	-3.0%	20	61%	62%	70%	1988	Administrative 1%
Indonesia	6.0%	-2.3% b	10	57%	61%	71%	1985	Default 10%, Adm 2%
USA (GSL)	8.0% a	3.8% b	10	29%	41%	53%	1986	Administrative 2%
Hong Kong	0.0%	-6.3% b	5	43%	43%	47%	1985	Administrative 2%
UK	6.0%	0.0%	7	26%	30%	41%	1989	Default 5%, Adm 1%
Norway	11.5% a	5.6%	20	33%	33%	48%	1986	Administrative 1%
Denmark	8.0% a	1.6%	10	52%	56%	62%	1986	Administrative 1%
Finland	6.5% a	-0.6%	10	45%	46%	52%	1986	Default 2%, Adm 1%
Brazil I	15.0%	-35.0% b	5	91%	94%	98%	1983	Default 30%, Adm 2%
Brazil II	318.0%	-14.9%	8	62%	65%	71%	1989	Default 10%, Adm 2%
Jamaica I	6.0%	-10.7%	9	74%	84% c	92%	1987	Administrative 2%
Jamaica II	12.0%	-5.6%	9	56%	62% c	70%	1988	Default 20%, Adm 2%
Barbados	8.0%	4.1%	12	13%	18%	33%	1988	Default 5%, Adm 2%
Kenya	2.0%	-6.9%	10	70%	94% c	103%	1989	Administrative 2%
Quebec	10.0% a	5.2%	10	31%	31%	37%	1989	Administrative 1%
Chile	varies	1.0% b	10	48%	69% c	82%	1989	Administrative 2%
Japan	0.0%	-1.4%	20	50%	51%	60%	1987	Administrative 1%
Venezuela	4.0%	-23%	20	93%	98%	108%	1991	Administrative 3%
Honduras	12.0%	3%	8	51%	53%	73%	1991	Administrative 5%
INCOME CONTINGENT LOANS								
Australia	varies	0.0%	17	48%	52%	57%	1990	Evasion 3%, adm 0.5%
Sweden	varies	1.0%	10	28%	30%	33%	1990	Evasion 3%, adm 0.5%

General notes:

All subsidy calculations use a real opportunity cost of capital according to the government rate of borrowing or estimates used by the World Bank. Loans are assumed to be paid in equal installments over a four year period, adjusted in size each year to keep up with inflation. Given the availability of relevant data, Swedish income contingent calculation is based on Australia's age earning profile information;

(1) Countries with I and II refer to situations where the loan program underwent reform.

(2) Nominal interest rate refers only to the rate during repayment. 'a' refer to loans that use a different rate during the disbursement and grace period. 'b' denotes those programs with interest rates which are indexed.

(3) Real interest rates use Purchasing Power Parity formula, where inflation is based on the average of the 1980-1988 period as reported in the World Development Report, except in instances noted where a 5 year average of inflation was calculated from the data date.

(4) The repayment length is the maximum prescribed in the loan, except for the two income contingent loans where it is the repayment length that is implied by the average income profile of a graduate. This does not include grace periods.

(5) The hidden grant percentage is calculated as a discounted cash flow of the student's account, and therefore excludes default and administrative costs.

(6) The government loss due to default subtracts the % of default from each year of the repayment stream. 'c' denotes where these figures have been estimated.
For Colombia, Jamaica, Chile and Kenya the figure used is loans in arrears.

(7) The loss with default and administrative costs subtracts an annual administrative cost related to outstanding debt each year.

(8) Year is date from which loan information was collected, and from which inflation calculations were made.

Default and Evasion: The loan subsidy measures the percentage loss to the government from each loan that is repaid according to the established loan conditions; however, it fails to reveal the overall loss to the government from the loan program. Lending agencies receive back less than is indicated by the hidden student subsidy because not all students meet their repayment obligations and the administration of the program is not costless. The experience with default has been mixed.[7] Table 3 indicates that default and evasion can constitute a more severe problem than subsidies. For example, non-repayment was as high as 81 percent in Kenya. Thus, even with theoretically tight repayment terms, little revenue comes back. In other instances, default is less of a problem (Sweden, Hong Kong, Israel). While default rates are lower among developed countries, particularly when they are small and have populations which are easy to track, it has yet to be demonstrated that default can be minimized effectively in large developing countries, without extensive administrative costs.

When default losses are factored into the return to the government - the method is described in Annex 2 - measured losses from the loan program are enhanced (Table 2, Column six). In the original Brazilian scheme, Venezuela and Kenya, losses increased to over 90 percent of the value of the loan.

[7] Measuring default is difficult for definitional reasons. Some countries measure arrears rather than default. A more serious problem is whether default is measured as a percent of the number of loans that do not pay (as used in our calculations), or the value of outstanding debt that is not being repaid in relation to the total outstanding debt. West (1988), suggests that if the latter were used as a measurement, default rates would be even higher. The figures reported above (and those used in subsidy calculations) are therefore conservative estimates of default and non-payment. Losses therefore tend to be underestimated. For loans that are collected through the tax system, as in Australia, default rates have not yet been measured, but it can realistically be assumed that the default rate will be similar to the evasion rate on taxes generally.

Table 3. Non Repayment of student loans as percentage of total loans
Selected Countries

Country	Non Repayment as percent of loans	Year	Country Definition
Jamaica	38.8	1985	Arrears
Sweden	1.0	1988	Default
Ontario, Canada	0.5	1988	Default
Colombia	12.0	1985	Arrears
Chile	40.0	1989	Arrears
USA	17.0	1987	Default
Denmark	< 10.0	1987	Default
Israel	< 2.0	c. 1980	Default
Japan	2.3	1985	Default
Kenya	81.0	1987	Arrears
Hong Kong	< 1.0	1988	Default

Note: Each country has different definitions of non-repayment. Default means that countries have written off the loan, while some countries list payments as in arrears, when in reality students have defaulted.
1989 was the first year of repayment for the Chilean loan program.

Sources: Chile-Schiefelbein 1990; Jamaica-World Bank data; Sweden-Woodhall (1989), Canada-Quebec Student Financial Assistance Program (1990), Colombia-Woodhall (1987a), USA-Department of Education (1990); Denmark-OECD (1989); Israel-Woodhall (1983); Japan-OECD (1989); Kenya-World Bank data; Hong Kong-Woodhall (1990).

Administrative Costs: To establish the true cost of a deferred cost recovery program, administrative costs, too, must be taken into account. These costs generally fall into initial processing costs, overall maintenance costs and collection costs. In developing countries, tracking mobile students can be extremely difficult, making administrative costs higher. The small average size of loans makes them proportionately more costly. No detailed comparative study of costs of loan programs has been conducted, and data are mostly limited to those from developing countries. The most efficiently run operations -- in Sweden, Hong Kong and Canada -- costs report ranging between a half and one percent of outstanding debt each year.

(Woodhall 1983, Woodhall 1990(b), Quebec Student Financial Assistance Program 1990). In Latin America, the overall cost of managing a loan has been put at between 12-23 percent of the value of the loan (Woodhall 1983). Annual reports from Latin American loan organizations confirm these estimates, and suggest that the institutions investing in recovery are spending even more, as high as 30 percent in Honduras. In calculating the net return of loan programs, when costs are unknown, we assume an annual cost of only two percent of outstanding debt each year; when discounted, this implies an overall cost of approximately 10 percent of total loan value, and thus is likely to understate the full cost of a loan program.

Programs that rely on commercial banks or taxation departments have been far less costly to administer. Operating costs for commercial banks tend to be much smaller than autonomous loan bodies. In Brazil, operating costs for the commercial banks are approximately 10 percent of the total loan value (World Bank data). Administrative costs for taxation collection may be even less expensive, due to large economies of scale. The Honduran Ministry of Finance reports paying the Central Bank a service charge of between one percent and two percent of money recovered.

Overall losses on loan programs, taking account of administration costs, in addition to interest subsidies and non-repayment, are shown in Column seven of Table 2; given the low assumed value of administration costs, these results should be regarded as conservative estimates of what the true net loss to government is likely to be. The most efficient programs are in Sweden and Quebec, which both recover well over 60 percent of the loan's value (i.e. losses of 33 and 37 percent respectively), while the programs in Venezuela and Kenya actually cost more than would outright grants to students.

Box 3: Equity and Risk Aversion

The equity considerations of student loans are no less important than financial efficiency. While loans can be an important tool to assist people meet their educational costs, poorer individuals are less likely to borrow than middle class students. The problem of "risk aversion" has been confirmed by empirical studies. Sweden's former mortgage-type loan was not found to promote access among lower income groups (Reuterberg and Svennson 1991). Other studies confirm this finding in industrial countries.

Borrowing to finance higher education is unlike borrowing to purchase a house because, when people borrow to finance a degree they are not completely certain what they are purchasing (especially if their parents did not attend higher education); there is a risk of failing the course; and not all degrees lead to high private returns. That is, while mean incomes may show a high rate of return, in reality, incomes can vary considerably. In addition, while private returns are likely to be high for wealthier students, they are less likely to be high for poorer students who lack family connections (Barr 1990).

To minimize the risk to low income students, most governments subsidize loans. But large subsidies undermine the purpose of having the loan in the first place. Governments can minimize more effectively the problem of risk aversion by limiting the repayment burden in any given year: by linking payments to income, imposing payment ceilings, or providing exemptions if income falls. Such measures can minimize the risk to low income students and encourage them to borrow to finance their studies.

Loans in Relation to University Costs

One of the central theoretical and practical rationales for loan programs is to diversify (broaden) sources of funding for higher education. As noted, however, most loans are used not for institutional funds, but to limit government burden for student maintenance. Table 4 examines the experience in seven countries where a loan scheme is coupled with fees in public universities to help cushion the impact of cost recovery.

Table 4 Effective Cost Recovery from Loan Recipients at Public Universities (as a fraction of unit instructional costs*)

Country	(1) Unit Instructional Costs	(2) Average Tuition From Non-Loan Students	(3) Implied Cost Recovery Ratio For Loan Recipients	(4) Average Loan Size in Relation to fees
Chile	100	35	5	Greater
Colombia	100	4	4	Greater
Indonesia	100	25	7	Greater
Australia	100	18*	9	Equal
Canada (Quebec)	100	22	14	Greater
Japan	100	9	4	Greater
USA	100	24	11	Greater

* Fees in Australia are nominally set at 21 percent of recurrent costs, but students receive a 15 percent discount on fees if they pay them up-front.

Sources for unit cost and tuition data: Chile-Brunner (1990); Colombia-Gomez Buendia (1984); Indonesia-World Bank data; Australia-Hope and Miller (1989); Canada-Quebec Student Financial Assistance Program (1990); US Department of Education (1990); Others-OECD (1990). Unit instructional expenditures are estimated where only total unit cost is known. Estimates assume 30 percent of expenditures for research.

Table 4 compares present value contributions from students paying direct fees from their own funds, and those paying with government sponsored student loans, to higher education instructional costs. Column three shows the proportion of teaching expenditures that governments effectively recover from students who receive a loan. In these seven countries, with some of the highest public sector cost recovery in the world, governments recover only between four percent (Colombia) and 14 percent (Quebec) of instructional costs from loan recipients. Actual cost recovery, however, is even lower because in every instance, except Australia, the average size of loan is larger than tuition costs. So governments are actually spending large amounts of money on student support in addition to institutional subsidies.

In Australia, the loan is fixed at the level of fees charged. It is easiest, therefore, in this instance to understand the relationship between immediate and deferred cost payments. Each student has an

option: to pay up front or to pay in the form of a loan. Tuition fees are set at 21 percent cost recovery[8]. If the student decides to repay in the form of an income contingent loan, the government recovers, on average, about 43 percent of the loan value. The effective cost recovery therefore represents only nine percent of unit costs. Overall, effective cost recovery is extremely low. This is so for two reasons. First, fee levels generally do not represent significant portions of the costs of higher education. The low initial cost recovery is compounded by loan programs which require further government expenditure just to recover costs in a deferred form. If loans are to be used to foster cost recovery, significant fee levels must be established. To date, loans have been operating only at the margins of cost recovery.

[8] There is a 15 percent discount if the student pays fees directly. The Australian scheme allows this discount in recognition of the hidden subsidy on the loan. However, as calculated for average income earners, this discount is well below the loan subsidy. Israel allowed students eligible for loans the option of a 35 percent tuition discount if they turned down the loan: this calculation was based on the actual subsidy in the loan (Woodhall 1983).

Box 4 : Brazil: Establishing the Costs of a Loan Program

Brazil has contemplated reform of their student loan program, which primarily is intended to promote access among low income students to private institutions. The question arises how much will the government have to lay out each year, and how much will be returned from repayments.

The loan program will be loss making, even when revenues are fully built up. The loss depends on the subsidy and the default level. The graph illustrates the projected relationship between income and expenditures for a program that covers 25 percent of the Brazilian student population, with loans averaging $500 per year. It also assumes that the higher education system (and the loan coverage) is expanding at three percent per year. Thus, expenditures too expand in real terms by three percent per year.

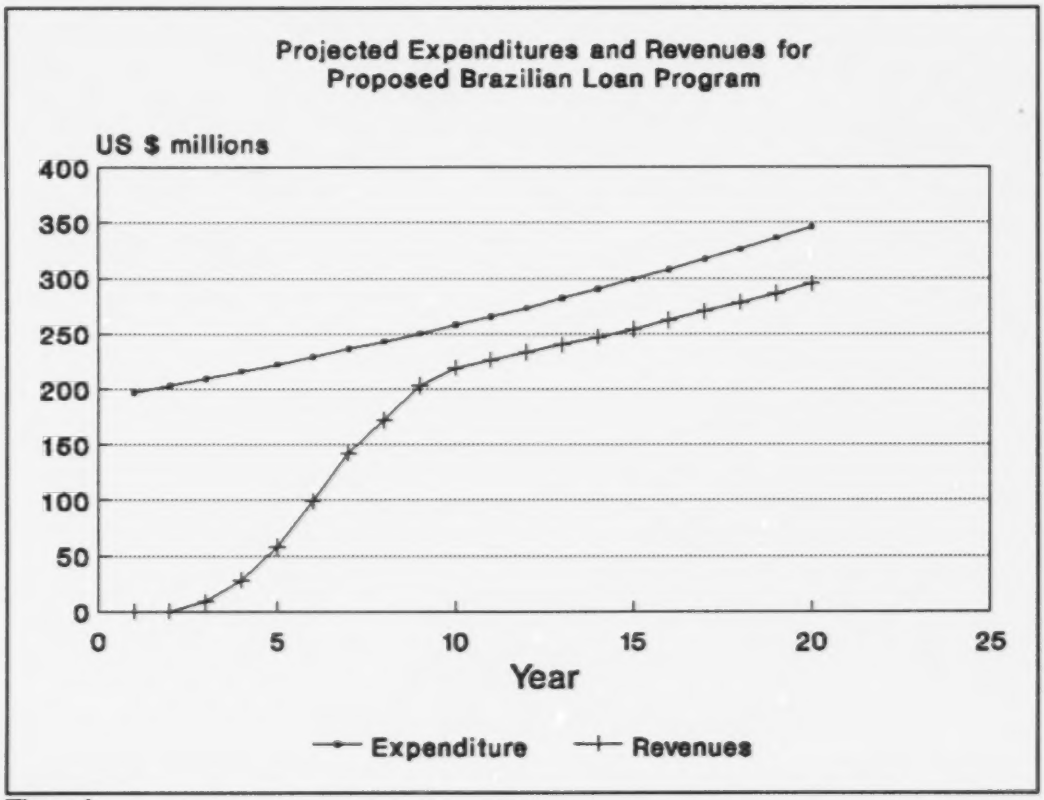

Figure 1

In conducting these forecasts, it is important to consider that average loan value per student must be maintained in real, rather than nominal, terms. Revenues build up slowly, and reach a maximum in relation to expenditures after approximately nine years.

4 Improving Performance

Cost sharing for higher education is important in many countries as universities need to broaden their financial base to improve the efficiency, equity and quality of education. Many students, however, cannot afford to pay the up-front costs of their education, or even a sizable proportion of them; deferred cost recovery programs fill this void by allowing students to pay by tapping their future earnings. While this principle is well established, we have seen that past experience with loan programs has been disappointing, particularly from the viewpoint of financial efficiency. Yet, it should not be concluded from disappointing results of past experience that loans programs should be abandoned. On the contrary, we argue that reform and improvement in several key elements of program design as necessary conditions for well functioning loan programs. In this section, we outline three major issues that require attention for programs to work well: effective targeting, reducing subsidies while limiting debt burdens, and minimizing evasion.

Targeting Loan Support

Many student loan programs are open to all students, regardless of need or ability. In Africa, loan programs in Ghana and Kenya allow all students to borrow money for their maintenance expenses in public institutions. Recently implemented schemes in the United Kingdom and in Australia also provide students with access to credit, regardless of income. But open access can be expensive to governments, particularly if support is subsidized. The primary advantage of open access to loan support is that no one will be missed. The chief disadvantage is that usually fewer funds are available for needier students, and limited available support may often go to benefit those who can afford to pay.

A successful support program needs to be targeted effectively, to those who are deemed most deserving of support. Without effective targeting, growing student numbers in the future, as well as less-than-full loan recovery, will result in increasing, and unsustainable, pressures on limited loan funds. Given that loan funds are subsidized and most likely will continue to be so (though we argue for much lower subsidy levels),

targeting will facilitate the task of limiting the extent of loans subsidization. Other reasons, in addition, may underline the need for deliberate loan targeting. The finding (Table 1) that in many countries the percentage of students receiving loans is not high, indicates that rationing mechanisms are at work. But with open access, these will not have been established deliberately by government; self-selection into the loan scheme amongst well-to-do students, together with a disinclination of risk-adverse poorer students to enroll, may have introduced implicit rationing criteria that may not be in conformity with overall policy objectives. Several targeting criteria are presented in the discussion that follows, the most effective - and acceptable - being targeting according to need and to ability. Although discussed separately, many programs employ more than one of the criteria discussed below.

Means testing: Access to loans may be limited to those students whose family or personal income falls below a threshold value. Means tests may take a variety of forms. In the US Stafford/Guaranteed Student Loan Program (GSLP), complete support is available to students below the income threshold.[9] Alternatively, loan amounts can vary according to the difference between an individual's available resources and the costs of a given course of study, as in Canada, Barbados, Brazil and Sweden. The calculation of need can be adjusted for the number of family dependents; or parental income can be completely ignored and the student's assets and income assessed independently as in Sweden, the Netherlands and Norway. In these countries, students over 19 years of age are treated as financially independent of their family. Almost all students are eligible for support. This stipulation, it is believed, has been significant in ensuring access for women. But this same requirement in many developing countries has enabled students from wealthier families to benefit enormously from student support, simply because students at age 19 are unlikely to have their own sources of income.

In developing countries means testing can be extremely difficult, particularly where income

[9] In the late 1970's, the SLP, which had previously been restricted to needier students, was made available to all students in accredited higher education institutions. In the 1980's, the government felt that the costs of the program had become too high and reintroduced targeting: the loan program was scaled back, with access based on their need.

tax systems are not in place, where the extended family is important and where the non-market sector is sizeable. Experiences in Colombia and Brazil indicate that programs could be better targeted if stronger restrictions on income ceilings were imposed. In Colombia, funds were allocated to students whose families fell below an income threshold. But the threshold used was relatively high. In Brazil, need is prioritized -- that is students are ranked. The government disburses all the funds it has in a given year according to the ranking and does not try to conserve funds (Vahl 1990). The major problems in assessing financial needs are presented by McMahon (1988) together with a suggested method for computing family ability to pay, illustrated for Indonesia.

One effective technique for targeting funds is to allow higher education institutions to manage a pool of loan money, and to allocate funds to neediest students. Being in closer contact with student population may give these institutions an advantage in evaluating needs. Chinese, Chilean and Indonesian universities have been fairly successful in identifying needy students. The targeting of student support in Chile illustrates steps that can be taken to circumvent limitations on reported income. In addition to student and family income, students must submit information on their parents' occupations and education levels, family assets and place of residence. This information is verified through spot checks and students are barred access if they provide false information.

Box 5: Means Testing at the University of the Philippines

In 1989, the University of the Philippines combined sharp tuition increases with increased financial assistance to needy students. The "Socialized Tuition and Financial Assistance Program" (STFAP) has both increased overall institutional revenues and support for needy and academically qualified students. The University grants two types of financial assistance. The first level of support are tuition discounts which are awarded solely on the basis of need. The second are maintenance grants which are given for both need and academic merit.

To assess financial need, the University has had to move beyond income tax returns, which often understate true ability to pay. Around 40 percent of the 15,000 students who apply for financial aid receive less assistance than they would have if means testing were based on income tax returns alone. STFAP applicants must complete a twelve-page questionnaire which are encoded for computer processing. The questionnaire asks about family assets, parental occupation and education levels, and location of residence. The questionnaire in itself does not stop dishonest applicants, but home visits and harsh disciplinary actions are believed to make applicants answer questions more truthfully. Home visits verify the accuracy of most reports. Several students have been expelled from the university for giving false information.

Ability criteria: Access to support can be based on student performance, either at secondary school or university. Ability restrictions give students a strong performance incentive, while also rewarding those who are most likely to benefit from higher education. Restricting eligibility in this way can help to avoid providing subsidies to students that are most likely to repeat or drop out. In Indonesia, students were only eligible for loans as they approached graduation, after they had proven their academic ability. It may also be useful to define publicly the academic standards that must be achieved to attain access to loan funds. In Venezuela and Honduras, a student failing to receive minimum grades, will lose access to loan support and must begin repayment of loans immediately. In Colombia, access to loans is determined partially by results on the national secondary school examination. There is concern, however, that the use of ability criteria could result in the selection of wealthier students with access to better educational facilities.

Box 6: USA: Quality Restrictions and Efficiency

The Stafford Loan Program (formerly the Guaranteed Student Loan Program) has been the principal government mechanism for promoting access to higher education. Under the program's initial terms, all post-secondary students at accredited institutions satisfying need criteria would have access to subsidized loan funds from private commercial banks. Loan funds could be used at public or private institutions, including vocationally oriented proprietary institutions. The government would act as the loan guarantor and pay a subsidy to the banks.

Guaranteeing widespread access has undoubtedly helped disadvantaged students, but the lack of quality standards (either among institutions or students) has led to an increasingly costly program. During the 1980's, approximately 17 percent of borrowing students failed to repay their debts. Default stems from the high risk involved guaranteeing access to all low income students, since the government makes little effort to control the quality of the students receiving support. The subsidized loans have been available to students at institutions, even if they accepted students without a secondary school diploma. Therefore, the subsidy in the loan has encouraged less qualified students to enter poor quality schools. Default is by far the highest in proprietary and two-year institutions. In 1989, the rate was 33 percent among students at proprietary schools while only seven percent among students attending four year institutions.

Reform of the program requires the government to reconcile increasing quality standards with the need to preserve access for the neediest students. To resolve this problem, quality control focuses on institutions rather than placing restrictions on student achievement level. Institutions that accept students without a secondary school degree or its equivalent will no longer be eligible for loan funds. While this will not correct all the problems, it will certainly reduce the rate of default and encourage institutions to raise their entrance standards.

Duration: The period for which student support is available can affect student flows, and thus the efficiency of the education system. In many higher education systems, repetition is fostered by open ended availability of support. Limiting loans to the prescribed length of a course can improve student performance, and also conserve funds. This consideration has been important in program reforms in Australia, the Netherlands and Brazil, where support has been limited to the official duration of study (sometimes with one year extensions). A potentially negative consequence of this type of restriction is that it can penalize students who work and study at the same time, and are therefore likely to take longer to complete their courses. An interesting innovation to address this problem has been implemented recently in Denmark: the "clip card" approach allows students to draw upon a fixed total loan on a month by month basis as they choose. That is, although aid is limited to the equivalent of four years, students can spread the aid over the expected period of study as they choose. This flexibility is intended both to improve incentives to finish on time, and to mitigate

problems for students that need to take longer to complete their studies.

Box 7: Grants in addition to loans

The poorest students will not be able to gain access based on loans alone: for them, foregone earnings are too high. Tilak (1985) illustrates the importance of opportunity costs in determining access for India. Fees generally make up only a small percentage of total private costs for higher education, and changes in effective fee levels, given loans, have a relatively minor impact on access for most people. On average, tuition fees represent about 19 percent of total private expenditure (including foregone earnings) for university students and about 13 percent for college students. Access for groups at lower income levels, therefore, is much more a function of opportunity costs than of fees. Therefore, without sufficient support, they will not attend. Many countries provide grants rather than loans for the poorest students. The US has a system of Pell grants in addition to loans. Similarly, in Canada, needy students receive a grant (only after they have received a loan). In Colombia, grants rather than loans are given to a few students.

Reducing subsidies while limiting debt burdens

The manner in which interest charges are assessed is central to the balance between efficient cash flows for the government and equitable debt burdens to students. The lower the interest rate, the larger the subsidy on loans. But higher interest rates increase debt burden and the likelihood of default. Therefore, in designing repayment plans that limit the subsidy element in the loan, it is extremely important to examine the likely range of incomes that graduates will be earning. A successful loan program will not simply raise interest rates, but will redesign the repayment format so that graduates will be in a position to pay.

Fixed Real or Floating Interest Rates: A common solution to the open ended subsidy problem is to tie interest rates to an indicator of inflation or commercial lending rates. By doing so, the level of subsidy remains fairly constant, and it is easier to project the financial implications of a loan program. After the poor experience of charging fixed nominal interest rates, some countries such as the UK and Australia, now adjust outstanding debt for inflation. Alternatively, in Sweden, interest rates move with the government lending rate while in Barbados interest rates are adjusted according to the interest on government bond issues. Controlling the level of subsidy on a loan implies increasing interest charges both during the period of study and the repayment period. In the US, Quebec and Norway, for instance, no interest is assessed during the study and grace period. The resulting subsidy during this short period, however, can be quite significant.

Repayment Period: Equally important for minimizing the subsidy is ensuring a limited repayment length. Longer repayment periods are an effective guard against default and are less burdensome to the student, but lead to larger hidden subsidies. In Sweden, the old student loan program allowed students until their 51st birthday to repay their loans, and the result was minimal defaults. The average interest rate subsidies, however, have been calculated at approximately 53 percent (Woodhall 1989).

Reducing Subsidies Implies Linking Repayments to Income: One of the major problems with traditional mortgage loans is that, even when subsidized, they impose heavy repayment burdens in the first years after graduation. Typically, a graduate's earnings are low immediately after graduation and rise quickly. Inflation implies that the real value of equal nominal payments decreases over time. Students therefore have the largest debt burdens when they are earning relatively little. In Venezuela, where interest rates for student loans are well below the rate of inflation, the real value of the first monthly payment is more than 250 times the real value of the last payment. So although the loan is heavily subsidized, the student might default because the initial payment represents an unmanageable proportion of income.

Unless payment terms are restructured, non-subsidized student loans are likely to lead to payment plans that require excessive portions of a graduate's income in the first years of repayment. This problem will be particularly acute in inflationary environments, since the real value of the first payment will be so much greater than the last payment. To circumvent this problem, graduated or income-contingent payment plans should be designed so that payments are related to income.

Box 8: Sweden: Using Financial Efficiency to Improve Equity

The reforms in Sweden's student support system, implemented in 1989, sought to increase participation rates in higher education among low income groups, while increasing the financial efficiency of the program. The reforms followed two basic strategies: (i) increasing the availability of support funds for poorer students by converting the hidden subsidy in the old loan program into open grants; and (ii) minimizing the risk of borrowing by linking repayments to income.

The original student support program, begun in 1964, assisted virtually all students. A grant/loan allowance was calculated at 140 percent of the government's social security subsistence level. The program was widely regarded as one of the most successful student support schemes, particularly because of its low administrative cost (one percent), and low default rate (one percent).

In the 1980's, the program was criticized for poor financial performance and more importantly for its failure to raise the higher education participation rate of students from working class backgrounds. To redress these problems, the new loan/grant mix essentially allows more money to be channeled to student support by cutting back on hidden grants (Morris 1990). The new support package has raised both the total support and the percentage which is awarded as an outright grant. The rest is given as a loan to be repaid on an income contingent basis of four percent of income. The same deferment clauses are still in effect. But the loan carries with it an interest charge that is half the government lending rate. This yields a positive real interest rate of about one percent, and has therefore reduced the hidden subsidy to about 20 percent. Thus, with the savings from eliminating the hidden grant, outright grants have been expanded. This should be important in assisting low income students in attending higher education, as their effective risk is now minimized, and the overall availability of credit and open support has been increased.

Income-Contingent payments circumvent this problem, but they are not always a feasible option (because of the absence of accurate income reporting). An alternative is to design scheduled repayments so that they approximate the growing trend in expected incomes. This implies tilting repayment schedules so initial payments are smaller than later ones. Such graduated repayment plans could effectively minimize burdens on students after they graduate while eliminating subsidies.

Minimizing Evasion

The other major problem that has plagued the finances of student loan programs has been the failure of many students to repay their debt. Default can be divided into two problems: students who cannot pay, and students who evade payment. Properly defined repayment plans will help students that do not earn large salaries after graduating. In addition, the following steps have been shown to improve performance.

Income contingent deferrals: These are an essential minimum step in avoiding situations where students who cannot pay are unnecessarily classified as in default. The lowest loan default rates have been in Sweden, Hong Kong and Quebec, in which loans have low income contingent deferment clause. In these loans, when a graduate's income falls below a threshold level, students are exempted from payment -- while still accruing interest charges. The new student loan program in the UK also has an income deferral clause. In all of these programs, students must submit proof that their incomes indeed have fallen below the threshold level before deferral is granted.

Box 9: Honduras: Reducing Default can be Expensive and Deter Low Income Students

The Honduran loan program, Educredito, has provided approximately 300 students per year with loans to study both within Honduras and abroad. In its twenty year history, the program has encountered severe problems with default. In 1990, the government moved to privatize Educredito. As a consequence, Educredito has taken steps to eliminate these losses. In its earliest years, when the program was small, students were followed closely to ensure repayment. However, as the program grew, both in numbers and loan amounts, many students succeeded in avoiding paying their debts. Overall, the non-payment rate was about 90 percent of the loan portfolio. Due to concerted efforts in the last three years, Educredito is recovering loans from almost all students, and of the latest cohorts only about two percent fail to pay. This success has not been costless, and could have important, although undocumented, equity implications.

To boost recovery, the loan program now requires either two guarantors or collateral on every student loan. In the event of non-payment, Educredito reserves the right to confiscate property or seize assets of the guarantor. Before taking such radical action, the loan organization uses private agencies to locate students that are not paying nor responding to contact. If after locating students and demanding payment the debtor still refuses to pay, Educredito utilizes a private agency for collection. The costs of these operations are high. In 1990, nearly 30 percent of the operating budget went to administrative costs, and a substantial portion of these paid for private agencies.

In the future these costs should fall as attitudes change towards non-payment. A more worrying problem, however, has been that the steps taken to ensure payment, particularly the requirement of guarantors and/or collateral, have deterred low income students from applying for credit. These students have great difficulty in securing guarantors given Educredito's determination to secure repayment. This problem has yet to be resolved.

Ensuring Incentives for Financial Agent: In many instances, guaranteed public budgets for loan programs undermine incentives for institutions to collect. The autonomous loan bodies in Latin America often prefer to rely on public funds to provide new loans rather than stepping up efforts to secure repayments. In

Honduras, moves to privatize the loan institution, Educredito, have led to needed investments in the recovery apparatus, and have successfully reduced default from 90 percent to under 10 percent. As noted, experience with private and public banking systems has been such that sometimes it may be cheaper for a bank to collect from the government rather than the debtor. In the US and Indonesia, loans were guaranteed to nearly 100 percent of their value. However, recent steps in the US have sought to minimize the extent of the government guarantee and discount its value -- enough so that the institution has the incentive to collect.

Requirement of a Guarantor: A controversial policy to ensure repayment is requiring a wage earning guarantor who agrees to pay the loan if the student does or can not. This type of arrangement has been implemented in most of Latin America. In Ghana, each borrowing student must have two guarantors, who are wage earners (and thus trackable by the government). The result of such an effective guarantee should be that default will be negligible. Requiring a guarantor, however, can have negative consequences that defeat the purpose of a credit scheme. It might very well be the case that precisely those people who most need support will be the least able to provide guarantors (see Box 9).

Direct Payroll Deductions: Increasingly, loan schemes authorize companies to deduct wages from the salaries of debtors in arrears. In some instances this may be difficult if legal restrictions prohibit deducting salaries for loan repayments. This strategy also requires the lending agent to know where the debtor is. The approach, has been implemented in Jamaica, Honduras and Colombia and seems to be effective.

Choosing Appropriate Collection Institutions: While autonomous bodies and universities may possess comparative advantages in selecting students and targeting support, it is less clear that they have the capacity to collect repayments. But banks and tax systems often have the necessary infrastructure that they lack. The former can operate efficiently at collecting money so long as policy does not undermine their incentives to do so. In Venezuela, while exact figures are not available, the student loan program operated by the national savings bank (BANAP) does not suffer from problems of default, while the public collection agencies

have much greater problems. Besides relying on banks, some institutions are utilizing third party collection agencies. Recovery in Honduras has been dramatically raised by using private agencies to locate students, and also agencies to collect money. Default, as a consequence, has fallen below five percent (Box 9). Colombia passes on additional charges for such services to the student and students now are reluctant to default on their loans.

Insurance fees: Students can be required to contribute an up-front insurance fee on their loan. Currently, insurance for disability or death is required in Brazil, but it may be possible to extend the idea further to a general default insurance fund as is being discussed in France.

Bar Access to Further Credit: When borrowers in Brazil realized that they were ineligible for car loans as a result of failure to repay student loans, they quickly began repaying. Simple measures such as barring access to further credit can ensure that those who are able to pay (those who can afford a car or a house) will do so.

Maintain Continuous Contact: It may be helpful to maintain contact with students at periodic intervals while they are borrowing to remind them of their loan obligation. The French government is proposing a student loan program that will require students to make small payments each year even while they are borrowing; if the student fails to make any payment, the loan will be cut off.

Conclusions

The goal of most deferred cost recovery programs is to secure student contributions to higher education costs. If subsidies and losses are too high, the program is essentially meaningless and should be abandoned. Policy makers should insure that a loan program is for the most part self financing. Three basic strategies can significantly improve the performance of current loan programs.

To utilize resources efficiently, a deferred cost recovery program must be properly targeted

to students who need and can benefit from support. Efficient targeting of subsidies to needy and qualified students will improve the financial viability of a program and increase the availability of support for those who need it.

Second, hidden subsidies can be eliminated by charging positive real interest rates, but this will have to be combined with repayment plans that make sense in relation to graduate incomes. Where income information is accurate an income contingent repayment plan would be most appropriate. A similar option is to allow deferrals of payment on the basis of low income, and therefore place a ceiling on repayment burden. This can be achieved through (i) deferral clauses, (ii) maximum repayments as a percentage of income (say, no repayment should exceed 10 percent of monthly income), or (iii) payments as a fixed percentage of income. If these collection methods are administratively difficult, then adjusting scheduled payments to the likely pattern of graduate incomes (i.e. graduating the payments) would improve collection as well.

Third, a strong strategy to deal with default must be in place, beginning with the removal of institutional disincentives to collect. On the one hand, repayment terms should allow graduates whose income has fallen to defer payments, and therefore limit their payment obligation in any year. On the other hand, recovery agents should take strong measures against borrowers who are evading payment. Insuring that the most suitable type of institutions are collecting is an important step. Barring access to other credit, deducting from payrolls, using tax information and strengthening collecting agents are important steps available to reduce default.

5 Alternative Scenarios:

Our discussion in the preceding section suggested a range of reforms, based on "best-practice" measures currently in place, to improve the financial performance of existing loans schemes. The range of deferred payment options, however, extends beyond the formal loan schemes discussed thus far. A more radical strategy than the reform of the traditional loan scheme would be to implement alternative (or additional) forms of deferred cost recovery, a consideration particularly relevant to countries that are weighing the merits of introducing for the first time some form of delayed cost recovery. In this section we discuss the efficacy and advantages and disadvantages of three such schemes: equity finance (the "graduate tax"), employer taxes, and national service.

Graduate Tax

The idea behind a graduate tax is straightforward. In subsidizing higher education, the state assumes a share in financing the creation of human capital. This produces a future stream of benefits that accrue mainly to the graduates in the form of enhanced earnings. By participating in the finance of higher education, the government essentially acquires an equity share in the human capital created and is thus entitled to a dividend from the ensuing income benefits. In the case of a graduate tax this dividend can take the form of a percentage tax (say, one to three percent) on graduates' income over their working lives. The term graduate tax is somewhat misleading since it legitimately applies to individuals who attend higher education but fail to graduate. The tax is a form of user charge, and therefore could accumulate for each year that the student attends university. Percentage tax rates could also be made to vary with income level, while graduates with low income (low incomes being defined perhaps in relation to median incomes) would be exempt from the tax. Thus the government assumes the risks of human capital investment (depending on the size of the subsidy), which are spread over the student cohort; high-earning graduates will prove to have been good risks, while those with low incomes or high unemployment, poor ones.

Box 10: Equity Finance at Yale

In 1972, Yale University attempted to implement a novel equity finance scheme. The University offered students the option of deferring a fixed portion of their annual tuition payments in exchange for payments of 0.4 per cent of their annual income, for each $1000 deferred. Graduates who opted for this program were to repay as a cohort, not as individuals. Payments would terminate when the cohort's repayment was complete. Thus some individuals would repay less than tuition deferral, others more; there was an exemption for individuals whose payments had reached 1.5 times their original debt.

However, the program failed to attract a sufficient number of students and was abandoned after the first year. A central problem was that existing student loan programs offered more generous (i.e. highly subsidized) terms (Hope and Miller 1988). Indeed, the failure of such a program might be expected in the presence of a student loan scheme. A potentially high wage earner would shun such equity finance arrangements. He would always pay less under a loan scheme (whether subsidized or not) than in an equity finance program: in the latter case, his total payments would exceed the average, whereas in the former total repayments are equal for all participants. The absence of potentially high wage earners from the equity finance scheme would necessarily raise payments for those who remained. This, in turn, would discourage their participation in a scheme that had become financially less attractive.

First suggested by Milton Friedman this equity finance approach has been urged frequently by other education economists and policy advocates[10]. It has not as yet been implemented anywhere, although there was an interesting, but unsuccessful, attempt to introduce an equity finance scheme at Yale University in the early 1970's (see Box 10). The feasibility of a graduate tax for the UK is discussed in Glennerster et al (1968).

A graduate tax of the type discussed here in many ways resembles the income-contingent loan scheme recently introduced in Australia (which has been labeled as a graduate tax). However, the two schemes are quite different. While in the Australian scheme, income related loan repayments are made through the income tax system, this is done for administrative convenience only. In principle, repayments could be effected through other collection institutions, though there are clear advantages in using the taxation system for collection.

The major differences between the two schemes are outlined in Table 5, which also offers comparable information for the traditional mortgage loan scheme. The motivation behind both loan and equity

[10] Friedman 1962, Blaug 1973, Barnes and Barr 1989.

finance schemes is, ultimately, cost recovery, with the beneficiaries of higher education forgoing part of the return on education that they would otherwise capture. However, they are conceptually distinct. In the case of loans, there is a creditor-borrower relationship between the government and graduate, which terminates when the original loan has been repaid, as defined in the loan agreement. In the case of the graduate tax, the government's involvement takes the form of an equity holding, entitling the government to a share in the benefits of higher education, in the form of a percentage of the graduate's income over his working life. Thus payments made by graduates are defined as loan repayments in the case of loans, but are to be seen as dividend payments accruing to the government in the case of a graduate tax.

Table 5

Student Loans Verses Graduate Taxes: Contrasts and Similarities

Mortgage Loan	Income Contingent Loan	Graduate Tax
Government Provides Student Loans to Pay Fees or Living Costs	Government Provides Student Loans to Pay Fees or Living Costs	Government Acquires Share in Human Capital Equity
Government Recovery of Costs	Government Recovery of Costs	Government Share in Benefits
Loan Pays Fees (Tuition or Living)	Loan Pays Fees (Tuition or Living)	Tax Applies to Subsidized Education
Payments Accrue to Loan Fund	Payments Accrue to Loan Fund	Taxes Accrue to the Treasury
Level of Annual Payments Fixed	Level of Payment Contingent on Annual Income	Level of Tax Payments Contingent on Annual Income
Annual Payments a Declining Proportion of Income	Annual Payments a Fixed Proportion of Income	Tax Payments a Fixed Proportion of Income
Fixed Term Payment Obligation	Payment Obligation Until Loan Repaid	Tax Obligation While in Employment
Loan Disbursement Institutions	Loan Disbursement Institutions	No Disbursement
Need to Maintain Individual Accounts	Need to Maintain Individual Accounts	No Individual Accounts

Another important distinction regards the likely budgetary arrangements of a loan or a tax. The revenues generated on account of the loan schemes, either through direct fee payments, or the fee payments made with loan money, accrue to the education budget. Cost recovery is implemented to expand overall resources. Graduate taxes, however, would be applicable only to graduates that had benefitted from subsidized higher education institutions, and are not related to fee charges. A graduate tax is a mechanism for the government as a whole to recover its expenditure to the higher education sector, and the revenues would be part of general treasury accounts. There is no prima facie for earmarking graduate tax payments to higher education.

How effective are graduate taxes as a cost recovery device? In order to illustrate the impact of a graduate tax, the Australian loan program has been simulated as a graduate tax in which students contribute two percent of their income per year[11], and compared with an income contingent loan scheme with repayments set also at two percent of income. We assume that a graduate tax is collected for thirty years, rather than over the whole working life: this compares with income contingent loan repayments of 17 years (Table 2). While the present values of net benefits of a mortgage and income contingent loan scheme are roughly similar, they are only about half of the value of graduate tax (Table 6). Whereas an income contingent loan scheme achieves only nine percent cost recovery (Table 4), a graduate tax would result in roughly full recovery of the equivalent loan for 20 percent of teaching costs, though this may not accrue to higher education. Within twenty years (assuming student cohort growth of three percent a year), a two percent tax would generate about 15 percent of the total university costs in Australia[12].

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[11]Technically a graduate tax should be charged only on the income enhanced by human capital investment in university education (i.e. on income earned over that received on average by those with university entry qualifications). For administrative efficiency a lower average rate, levied on all income is assumed, rather than a higher marginal rate only on the graduate earnings differential.

[12] Details of these calculations are available on request.

Table 6

Present Value of Net Payments for Alternative
Deferred Cost Recovery Programs[13]
(Australian Data)

10 Year Mortgage Loan	Current Income Contingent Loan	Two percent Graduate Tax
$A 3,602	$A 3,126	$A 6,877

The chief justification for the equity finance approach is that it generates more revenue than a loan scheme. Since there is no formal connection with costs of education, tax payments can continue long after a loan would have been paid off; moreover, taxes are levied on higher salaries, given the upward movement of graduate salaries with age. Yet this gives rise to the criticism of graduate taxes, particularly in comparison to mortgage loans, that they are "front-loaded": the government has to pay out money immediately, but receives much of the return only in the more distant future when the stock of tax paying graduates accumulates. This argument may be overstated since in principle, the government may borrow against these outlays - just as it would if it ran a student loan program and all calculations have discounted reserves to their present value.

In practice, however, there may be some obstacles to a graduate tax (which apply also to loan schemes with repayment effected through the tax system). In many countries there are constitutional or legal barriers to creating a graduate tax; the tax may not be administratively feasible in some developing countries where collection mechanisms are weak; and it may be difficult to track down the self-employed. Where tax systems are weak, administrative capacity to identify graduates may be absent.

[13] Assumptions: All calculations use a discount rate of 5 percent. Loans assume three years A$ 2,500. Loan charges interest rate equal to inflation; has one year grace period; default rate of 10 percent; administrative costs equal to two percent of outstanding debt each year. Collections through tax system assume evasion of 3 percent and administrative costs of 0.5 percent per year.

Box 11: Argentina's Proposed Graduate Income Tax

In 1986, in the wake of severe fiscal shortages, the government of Argentina drafted a proposal for a graduate income tax on higher education. The draft contained three essential elements. First, a three percent tax on all income from professionals after the third year of graduation, to be deposited in a special account for each university. Second, a one percent tax on all transactions for professional services involving university graduates, to be paid by the contractor of the service. Third, parents of the students would also be required to pay and additional one percent of their income, beginning at the same time as student payments.

The total income from the three components was expected to equal 15 percent of the entire higher education budget. Only half of this revenue was to accrue to the universities, the rest would return to general treasury funds. The tax never received parliamentary approval.

Source: Gertel 1991.

Despite these obstacles, in many instances there could be practical advantages to a tax as opposed to a loan. First, a graduate tax obviates the need for the government to discuss the sensitive issue of payment of interest. Charging near market rates of interest (central to ensuring that loans do not lose too much money) can be politically difficult. A graduate tax allows the government to avoid this controversy because payments extend sufficiently so that present value returns are greater than would have been a loan with market interest rates. A second advantage may lie with the simplicity of calculating who must pay. Rather than determining who has completed payments, the tax simply assumes that all graduates must pay.

In terms of generating extra resources for higher education, there may be some dangers associated with true graduate taxes. With an income contingent loan, it is clear that the treasury acts as a loan collection agency and that legitimately the proceeds should return to the higher education sector (or at least to the loan fund). Graduate taxes however result from the earlier acquisition by the government of an equity share in the graduates' human capital: although the proceeds of a graduate tax could be earmarked for higher education, there is no overwhelming justification for doing so and it is unlikely that the treasury would accede to this readily.

Finally, it is arguable that income contingent loans and graduate taxes may be more

complementary than competing. Equity finance may be appropriate to recover costs from students in subsidized (mainly public) institutions only, while a loan program seems more justified for students attending fee-paying (mainly private) institutions. That is, loans may be seen as a tool to help students to meet existing fee payments, while a graduate tax serves as a means of implementing cost recovery, obviating the need to introduce fees.

Employer taxes

Taxation of firms, the users of educated manpower, is an alternative that has begun to receive attention; it is suggested that in certain country settings, notably skill-shortage states in Sub-Saharan Africa, a payroll tax on the employment of graduates would result not only in the generation of revenues that offset the costs of higher education[14], but would also lead to a more economical use of graduates in the labor market (Colclough 1989)[15]. Graduate payroll taxation is unlikely to be feasible in situations of excess supplies of graduate manpower and high graduate unemployment, because of the disincentive effects on the employment of graduates; it is more appropriate in economies suffering from general shortages of higher educated workers or of particular high level skills. In this case, taxes on employers related to the use of graduates in short supply can be regarded as a scarcity tax, which would not only result in revenues, but also encourage parsimony in the use of graduate manpower by firms.

Employers tend to pass the cost of general payroll taxes onto the employees in the form of

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[14] Using data for Botswana, Colclough (1989) shows payroll taxation levied on graduate earnings would be effective in terms of cost recovery, and compares well with an alternative income contingent loan scenario. While some of the assumptions employed in the simulations do not appear to be realistic, a reworking of the results by the authors using alternative assumptions give results that are even more favorable for payroll taxation. These results are available on request.

[15] See also Tilak and Varghese (1991); although referring to this as a "graduate tax", they essentially advance a similar idea.

lower wages[16]; a sharing of the incidence of payroll taxation between the employer and workers is to be expected (the proportions depending on the elasticities of supply and demand of labor). Thus Colclough sees additional merit in a payroll tax on graduates in lowering graduate salaries, thereby reducing their scarcity rents and the unnecessarily high private rates of return they derive from higher education. However, even with backward shifting of payroll taxes, it is not clear that firms will pass the costs of a tax on graduate employment onto the graduates alone. It is possible that firms will be tempted to shift such a tax onto workers in general (again depending on the elasticities of supply and demand for different categories and levels of skilled workers). If this were so, a tax on graduate payrolls would be inequitable, in effectively requiring workers of all skill levels to contribute to the costs of the education of the highly educated.

Not all suggested variants of the payroll tax idea seem feasible, however. Tilak and Varghese (1991) unrealistically call for full cost recovery of higher education, coupled with a regime of differential tax rates, related to costs of major disciplines (engineering verses arts for example). An alternative scheme is suggested in a recent comprehensive review of financing options for post-secondary education, by the International Academy of Education (1990). This calls for a payroll tax covering all workers (not just graduates) to be earmarked for education, on the lines of the French apprenticeship tax. There seems to be little theoretical justification for such a tax (unless it could be shown that there are external benefits such that all workers benefit from graduates) and, given tax shifting, the equity implications are unlikely to be acceptable.

In some countries, firms contribute to the cost recovery through the repayment of student loans. In Ghana, we have noted, employers of graduates who have taken student loans, contribute 12 percent of wages to the national social security fund, which is redirected to the education budget until the student loan is repaid. Although this is, formally, a payroll tax on graduate employment, the Ghanaian scheme may exact no real contribution from the employer; these payments might have been made to the pension fund even in the absence of the loan (Box 1). In China, a de facto policy of employer loan repayment exists. Students who

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[16] Forward shifting onto the consumer is also possible. The classic study of payroll tax shifting is by Brittain (1972) and relates to the US. See Whalley and Ziderman (1991) and Middleton, Ziderman and Adams (forthcoming) for further references and for an application of payroll taxation to the finance of training in developing countries.

receive loans often have them repaid by their employer; the compression of wage differentials existing in the Chinese labor market necessitates (and perhaps justifies) such employer contributions.

Community Service

Governments can move beyond explicitly financial instruments to exact payments from students or graduates, who would perform work or provide service in areas of high societal value, as a means of partially "paying off" the costs of their higher education. This approach has much in common with the compulsory or voluntary study-service schemes found in many developing countries, in which students (or recent graduates) perform community service outside the university. However, the objectives are very different though not necessarily in conflict. Most current programs may be regarded as "awareness" schemes, directed primarily towards the students themselves, with the aim of inculcating societal values and countering tendencies towards student elitism and isolation from the life of the general community. Cost recovery schemes concern socially productive activities that are in short supply. They may relate to student activities concurrent with study or, more generally, to labor market activities before or after graduation. We consider each briefly[17].

Could students not meet part of the costs of their eduction by "working their way through college", either by performing tasks within the university (assisting as library clerks, for example) or part-time work in the general labor market? In many job-shortage developing countries, this approach is not feasible, particularly given the resulting displacement of university junior personnel by students that would result. An alternative is to utilize students for tasks of high societal value, against which tuition fees could be waived, wholly or in part. The "Perach" program, covering all the universities in Israel, provides an example of a well functioning scheme, along these lines. Israeli students may work as tutors to disadvantaged teenagers, for which they receive payment equivalent to a half of university tuition fees (in turn covering about 20 percent of university costs). Some twenty percent of Israeli students are enrolled in the program, which offers a valuable service that the free market seems unable to provide.

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[17] In a concurrent paper, the authors survey current schemes and discuss ways in which they could be enhanced to provide for cost recovery, in addition. See Albrecht and Ziderman (forthcoming).

In every society, shortages persist (at least in particular locations) in the supply of certain occupations that are deemed to be socially of some importance. The persistence of excess social demands for these activities is to be explained by such factors as the presence of externality effects or inflexible wages differentials. Thus, in many countries there are acute manpower shortages in such areas as rural health care and secondary school teaching; graduates are normally unwilling to perform these tasks, at least in the numbers that society deems necessary. A partial solution is to require recent graduates to perform a period of national service in one of these socially productive employments, for perhaps two years following graduation, as a form of partial repayment for their education.

Box 12: Nepal: National Development Service

Between 1974 and 1980, the Nepalese government implemented a program of required rural service for all higher degree university students. The primary emphasis of the National Development Service Program (NDS) was twofold: to supply educated manpower for rural development and to improve the higher education system. Each participating student worked for one year under both university and local supervision, partly as a teacher in a rural secondary school and partly as a general community development worker in the surrounding community. Participants were responsible for mobilizing local resources and manpower for community projects, including health and nutrition education, reforestation campaigns, adult literacy teaching, improved sanitation, water supplies, bridges and schools, family planning promotion, agricultural and horticultural demonstrations.

The societal benefits associated with the program were high. Rural school enrollments rose sharply, particularly for girls. Literacy campaigns proved successful, and clean drinking water and public health campaigns improved living conditions. Students were able to transport materials to remote villages, as well as providing a feedback mechanism for the government, of information on rural needs.

In addition to its manpower function, the NDS was planned as a tool to make higher education itself more relevant to resolving the most pressing needs of the society. University relevance had come into question as it retained much of the colonial legacy. The NDS was seen as a means to adapt the university curriculum to national concerns facing people outside Kathmandu (where 95 percent of the population lives). The NDS therefore served as an important feedback mechanism for university planners and teachers. Unfortunately the program was abandoned due to political unrest, but the current government is considering reinstating it.

In the US, the federal government pays the tuition of a limited group of medical students each year who agree to serve in areas of acute medical manpower shortage; during the 1960's, a similar program

provided a supply of rural teachers. The Nepal scheme (Box 12) provides a relevant example from a developing country. Other programs operate in Indonesia, Yemen and Mexico. Such national service schemes provide indirect cost recovery through generating positive externalities, such as those related to increased education or health care. Using national service as a form of payment for higher education, however, does not represent a financial addition to the sector.

In addition, it is possible for the government to effect further cost recovery through paying the graduates on these programs a wage that is lower than market rates. In what was formerly the Yemen Arab Republic, graduates were used as a lower cost replacement of overseas primary and secondary school teachers. However, this is really equivalent to a graduate tax, as discussed above.

Some Conclusions

The opportunities for increasing student contributions to the costs of higher education are many. Student loans have received much attention both in the literature and in practice. While they have not always worked well, we have argued that suitably reformed, they can constitute a productive, though limited, mechanism for cost recovery. In certain countries, however, other mechanisms may be more appropriate. Indeed, the policy maker is presented with a wide menu of policy choices, though some creativity may be required in their application to particular local settings. Some of these have been outlined in the present section.

6 Moving Forward

While this paper has primarily focussed on the financial implications of loan programs, equity considerations are of considerable importance. Despite the lack of empirical work on the equity impact of loans on access in developing countries, it is clear that increases in cost recovery will, on the margin, discourage some individuals who would otherwise have attended. This may be seen as a negative equity impact. As noted earlier, however, most developing country higher education systems are not very equitable to begin with. Access tends to be skewed towards higher income groups, where children attend better primary and secondary schools and families can afford to have their children out of work for longer periods. Thus, a large group of talented individuals often lacks de facto access to educational opportunities, while large subsidies accrue to groups that are well-off. Increases in cost recovery will make it harder for these groups to have access, but it will also allow the government to invest in better access to primary and secondary education and provide grants to the least well off. The central equity concern of a deferred payment program should be how to design it so that any tendency to deter access is minimized.

Loan programs can be expensive enterprises which do not easily satisfy the needs for cost recovery. Without careful consideration, it is unwise to start a loan or tax scheme. With that said, the following list of issues can serve as a guide in considering whether a deferred payment scheme should be implemented. Annex 1 provides a more complete check list of options, summarizing the major issues discussed in the body of the paper.

First, a deferred payment program requires the participation of a **credible collection institution**, which in most instances requires the direct or indirect participation of the taxation department or social security agency -- either for direct collection or indirect support for the collection agent. The current evasion rate among graduates on taxes, the number of graduates that work in the public and private sectors, and the current rate of graduate unemployment are relevant variables to be taken into account. If default or evasion is likely to be greater than say 25 percent, it would be inadvisable to implement a program of refundable support; in

such cases, a carefully targeted grants program is likely to be more cost-effective.

Second, with loans, there must be a willingness to charge interest rates equal to or above **inflation** in order to minimize subsidies. With tax or income contingent collection, the rate assessed must be sufficient to ensure significant cash flows. Careful financial calculations must be conducted, which account for the likely impact of inflation -- particularly on the size of annual disbursements -- and growth of the higher education system. From this information, one can assess whether the program will generate significant income for the higher education system.

Third, the relationship between necessary repayments and the likely income of graduates must be examined to ensure that repayment burdens never pose an **excessive burden** on graduates. Excessive burdens only result in higher default. Average income profiles of graduates are not sufficient to understand likely problems. The income range according to profession and sector will be equally important in program design.

Fourth, developing a means of **targeting** support to needier and more academically deserving students will be crucial to a program's efficiency. The larger the expected participation rate, the greater is the need for tight repayment terms and strict enforcement of collection. In developing countries, good targeting means that an institution with access to information beyond income tax information. Institutions closer to students, such as universities, are often able to make the best judgements regarding need.

Fifth, loan losses can only be justified if there are **potential social gains** that would not be reflected in a graduate's income. Subsidies can promote, indirectly, private institutional development and/or manpower direction (graduates as teachers, rural development workers, private sector entrepreneurs), by forgiving loans. If these are desirable options, one can consider whether a student loan program is an efficient way of transferring subsidies to these areas.

A critical issue is whether a ministry of finance or a taxation department will support the program. In most developing countries, such support will be required for accurate targeting and efficient collection. In some instances, these ministries are too weak to handle the load, and alternative solutions to financial problems in higher education may have to be explored. These include outright fees with limited grants,

or restriction of numbers that participate in public higher education. In the instances where there is a credible possibility for the programs, support among necessary organizations and the proper setting of interest rates and recovery terms increase the likelihood of a program's success.

Cost recovery for student living expenses and institutional costs continues to be a pressing concern in many developing countries. Resources to promote access to quality higher education systems have frequently been eroded because of rapid university expansion without sufficient government resources. Student loans and alternative forms of deferred payments present and important policy option to assist in cost recovery, without deterring access to qualified students. In order to achieve these twin goals, however, programs require careful planning, particularly to ensure recovery.

ANNEX 1: Checklist of Policy Options for Deferred Cost Recovery

Structure/ Policy	Options	Description
Lending Institution	a. Autonomous Public Body	The most common institutional structure is to create a publicly administered and financed loan organization to distribute and collect loans.
	b. Public Banks	Another common institutional structure utilizes publicly owned commercial banks to administer loans.
	c. Private Commercial Banks	In countries with more developed banking systems private banks may be used to allocate loans. (US, Indonesia, Denmark).
	d. Higher Education Institution	Governments may transfer funds to higher education institutions for the purpose of administering loans. (China, Chile).
	e. Directly from Government Accounts	Money is disbursed directly from government ministries or trust fund, and collected by treasury. (Australia, Ghana).
Repayment Mechanism	a. Mortgage type loan	The most common approach by which the capitalized loan is broken into equal monthly payments.
	b. Income Contingent Loan	Payments are a fixed portion of monthly or annual income, thus putting a limit on the debt burden to a graduate (Sweden).
	c. Graduated payments	Payments fixed in advance, but increase with time.
	d. Income Contingent Loan (Tax)	Same as 'b' except payment may be collected through the taxation system (Australia).
	e. Deferral of Social Benefits	Repayment is through an already existing payroll tax in which pension benefits do not begin to accrue until the loan is repaid (Ghana).
	f. Graduate tax/equity finance	Students contribute through a lifetime increase in their tax contribution. (Offered briefly at Yale University, proposed in US and UK).
	g. Employer Contribution Through Tax or Loan	In countries where graduates are scarce, employers contribute to loan or tax repayments as a form of "scarcity" tax. Loan repayments are shared between employers and employees in Ghana and China.
	h. National Service	Repayment through labor that is socially valuable to and in demand by the society.
Targeting	a. Means Testing	Selection of credit recipients on the basis of family or individual (Sweden, Norway) income. Or more complex socio-economic status indicators (Chile).
	b. Ability Criteria	Selection of students on the basis of performance at secondary school, on national exams or within universities (Indonesia).

	c. Priority Areas	Priority support for students who study in fields of national manpower priority -- e.g. engineering, teacher training, health. (Colombia, Barbados)
	d. Restricted Length	Limitation on availability of funds to a fixed period of study -- as the official duration of a given course. (Brazil, Denmark)
Interest Rates and Subsidies	a. Fixed Real or floating	Interest rates can fixed in relation to inflation at either negative, zero percent or positive real rates, or they can float with an index of commercial rates.
	b. Differential Interest rates	Students charged different rates of interest based on their economic situation, thus targeting more subsidized support to needy. (US, Japan).
	c. Repayment Length	The length of the repayment period can be varied to achieve a balance between debt burden and financial efficiency.
	d. Graduated Annuities	Payments can be calculated so they are smaller in the first years and larger later on.
	e. Up-front Discount on Tuition	Allow students who are eligible for a subsidized loan to have their fees reduced by a fixed percentage if they forgo the loan. (Australia, Israel).
Default Minimization	a. Grace Period	Allow students a specified time after graduation before repayment begins, with the assumption that they need time to find employment.
	b. Income Threshold	Allow graduates to defer payment during any time in which their income falls below a specified level (Sweden, Kenya, UK).
	c. Incentives for Financial Agent	Where the government is the guarantor on the loans, the government discounts the value of that guarantee sufficiently so that institutions prefer to collect from the student.
	d. Require Guarantor	Requiring an income earning co-signer on a loan who agrees to pay in the event that the graduate does not. (Ghana, Barbados, Brazil)
	e. Payroll Deductions	Requiring employees to withhold a portion of salary of graduates for the purpose of paying the loan. (Jamaica)
	f. Income tax to locate defaulters	Governments to locate individuals that might be in default, through taxation institutions Canada
	g. Moral Pressure	Publish lists of defaulters (Jamaica)
	h. Required Insurance	Require student to pay an up-front fee to insure against losses that result from death or debilitating illness or accidents. (Brazil).
	i. Bar Further credit	Bar access to further credit if default. (Brazil)
	j. Collection Agencies	Utilize private collection agencies to locate students and secure payment. (Honduras, Colombia).

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Annex 2. Methodological Note for Calculating Subsidies on Mortgage Loan Programs

Assumptions used in calculations for Table 2.

1. Students receive equal real value loans over a four year disbursement period in lump sums at the beginning of each year.

2. Administrative costs are spread out evenly during the life of the loan.

3. Default is the frequency of loans that fail to repay. It is expressed as a probability for each year of repayment.

4. Grace periods have been rounded to the nearest year.

5. Repayments are in equal nominal amounts in yearly installments, at the beginning of each payment period.

6. Inflation is constant throughout the life of the loan.

7. Defaulted loans carry an administrative cost equal to good loans.

(1) Calculating the Student subsidy

PV= present value
D = disbursement value
i = initial interest rate (during lending period)
I = Interest rate during repayment period
g = grace period in years
n = repayment length
r = Opportunity cost of capital, from time of lending onwards.
L = disbursement length

Amortization value = $$A = D\sum_{l=1}^{l=L}(1+i)^{g+(l-1)}$$

The annual payment = $$P = \frac{A \cdot I}{1-(1+i)^{-N}}$$

The cash flow is as follows:
4 years of loan disbursements of equal real values (adjusted for inflation each year),
0 during the period of the grace, and
P during the repayment length (n)

PV disbursement = $$\sum_{l=1}^{l=L}\frac{Dl}{(1+r)^{l-1}}$$

$$\text{PV repayments} = P\sum_{n=1}^{n=N}\frac{1}{(1+r)^{g+L-1+n}}$$

$ Subsidy to student = $PV_{disb} - PV_{repay}$
% Subsidy to student = $(PV_{disb} - PV_{repay})/PV_{disb}$

(2) Calculating loss with default

The calculations are the same, except that payment amounts are reduced to include the probability that they are not made. Thus, the cash stream uses the following repayments:

$P_{def} = P^*(1-d)$ where d is the probability of default.

Thus the cash stream is only adjusted during the years of repayment.

(3) Calculating the total loss to the government

Each year of the cash stream is adjusted to reflect the cost of administering the loans. This is calculated by using the annual percent cost of servicing outstanding debt.

od = outstanding debt on loan
ac = administrative cost of servicing loan, as percent of outstanding debt each year
t = year in the loan life
cf = previous cash flow, including deductions for likelihood of default
CF = adjusted cash flow, including deductions for both default and administrative costs.

Thus in each year, the cash flow is adjusted:

$CF_t = cf_t - (od_t * ac)$

and the PV and subsidies are calculated as in section 1.

REFERENCES

Albrecht, Douglas and Adrian Ziderman (forthcoming). National Service as Cost Recovery for Higher Education. Washington, D.C.: The World Bank.

Australia (1988). Report on the Committee on Higher Education Funding (the Wran Report), Canberra.

Barnes, John and Nicholas Barr, 1988. Strategies for Higher Education: The Alternative White Paper. Edinburgh: Aberdeen University Press.

Barr, Nicholas. 1989. Student Loans: The Next Steps, Edinburgh: Aberdeen University Press.

_____. Forthcoming. "Income Contingent Loans: An Idea whose Time has come". Essays in Honor of Mark Blaug.

Blaug, Mark. 1973. An Introduction to the Economics of Education. London: Penguin.

_____. 1987. The Economics of Education and the Education of an Economist. Aldershot: Edward Elgar.

Birdsall, Nancy and Estelle James. 1990. Efficiency and Equity in Social Spending: How and Why Governments Misbehave. World Bank Working Paper No. 27. Washington, D.C.: The World Bank.

Brittain, J.A. 1972. The Payroll Tax for Social Security. Washington, D.C.: Brookings Institution.

Brunner, J. 1990. La Educacion Superior en Chile: 1960-1990 Evolucion y Politicas. (Processed).

Colclough, Christopher. "Raising Additional Resources for Education in Developing Countries: Are Graduate Payroll Taxes Preferable to Student Loans?". University of Sussex. (processed).

Department of Education & Science (UK). 1988. Top-Up Loans for Students. London.

Friedman, Milton. 1962. Capitalism and Freedom. Chicago University of Chicago Press.

Gertel, Hector, 1991. "Issues and Perspectives for Higher Education in Argentina in the 1990's". Higher Education. Vol. 21, No. 1. Pp. 63-81.

Glennerster, Howard, Stephen Merrett, and Gail Wilson, 1968. "A Graduate Tax", Higher Education Review. Vol. 1, No. 1.

Gomez-Buendia, H. 1984. Finanzas Universitarias. Bogota: Fedesarrollo.

Hope, J. and P. Miller, 1988. "Financing Tertiary Education: An Examination of the Issues". Australian Economic Review. Vol. 4.

International Academy of Education. 1990. Rethinking the Finance of Post-Compulsory Education. (Processed).

Jimenez, Emmanuel, 1987. Pricing Policy in the Social Sectors: Cost Recovery for Education and Health in Developing Countries. Baltimore: Johns Hopkins University Press.

Johnstone, Bruce. 1986. Sharing the Costs of Higher Education: Student Financial Assistance in the United Kingdom, the Federal Republic of Germany, France Sweden and the United States. New York College Entrance Examination Board.

McMahon, Walter. 1988. "Potential Resource Recovery in Higher Education in the Developing Countries and the Parents' Expected Contribution". Economics of Education Review, Vol.1, No.1, pp 135-152.

Middleton, John, Adrian Ziderman and Arvil Van Adams. Forthcoming. Skills for Productivity: Policies for Vocational Education and Training in Developing Countries. New York: Oxford University Press.

Mingat, A., Jee-Peng, Tan, and M. Hoque, 1985. "Recovering the Cost of Public Higher Education in LDC's: To What Extent are Loan Schemes an Efficient Instrument?". World Bank Education and Training Department Discussion Paper, Washington, D.C.: The World Bank.

Morris, Martin. 1989. "Student Aid in Sweden: Recent Experience and Reforms', in Maureen Woodhall, ed., Financial Support for Students: Grants, Loans or Graduate Tax? London Kogan Page.

OECD, 1990. Financing Higher Education: Current Patterns. Paris: OECD.

Psacharopoulos, George, Jee-Peng, Tan, and Emmanuel Jimenez, 1986. Financing Education in Developing Countries: An Exploration of Policy Options. Washington, D.C.: The World Bank

Psacharopoulos, George and Maureen Woodhall, 1985. Education for Development: An Analysis of Investment Choices. New York: Oxford University Press.

Quebec Student Financial Assistance Program. 1990. Annual Report.

Reuterberg, Sven-Eric and Allan Svensson. 1990. "Student Financial Aid in Sweden" Higher Education Policy, Vol. 3, No 3.

Schiefelbein, Ernesto. 1990. "Chile: Economic Incentives in Higher Education", Higher Education Policy, Vol. 3, No 3.

Tilak, Jandhyala. 1985. "Analysis of Costs of Education in India". National Institute of Educational Planning and Administration.

Tilak, Jandhyala and N.V. Varghese. 1991. "Financing Higher Education in India". Higher Education, Vol. 21, No. 1, pp 83-102.

U.S. Department of Education. 1990. Reducing Student Loan Defaults: A Plan for Action. Washington, D.C.

Vahl, Teodoro. 1990. Report to the World Bank on Student Loan Program in Brazil. Washington, D.C.: The World Bank (processed).

West, Edwin. 1988. Higher Education in Canada: An Analysis. Vancouver: The Fraser Institute.

Whalley, John and Adrian Ziderman. 1990. "Financing Training in Developing Countries: The Role of Payroll Taxes". Economics of Education Review, Vol.9, No.4, pp 377-387.

Woodhall, Maureen. 1983. Student Loans as a Means of Financing Higher Education: Lessons from International Experience. World Bank Staff Working Paper No. 599. Washington, D.C.: The World Bank.

_____. 1986. (processed) Financial Aid to Students in Indonesia. Washington, D.C.: The World Bank.

_____. 1987(a). "Establishing Student Loans in Developing Countries: Some Guidelines". World Bank Education and Training Department Discussion Paper. Washington, D.C.: The World Bank.

_____. 1987(b). Lending for Learning: Designing a Student Loan Programme for Developing Countries. London Commonwealth Secretariat.

_____. 1989. ed. Financial Support for Students: Grants, Loans or Graduate Tax. London: Kogan Page.

_____, ed. 1990. Financial Support for Students: Grants, Loans or Graduate Tax? London, Kogan Page.

_____. 1990a. Kenya: World Bank Assistance to Education Sector Report on University Students Loan Scheme. Washington, D.C. (processed)

_____.1990b. Student Loans in Higher Education: 1. Western Europe and the USA. Paris: International Institute for Educational Planning.

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